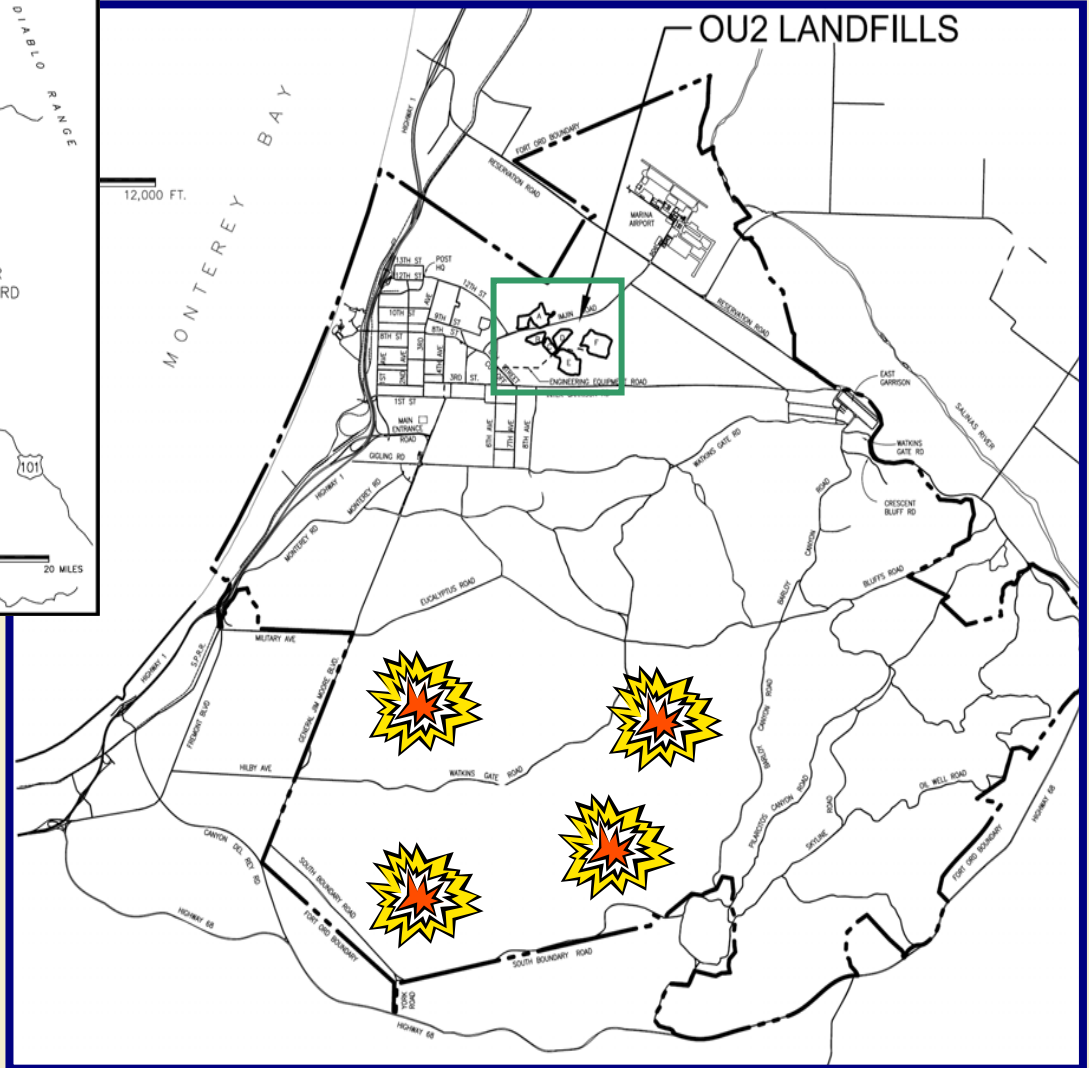




Fort Ord,
Monterey
County,
California

History and Closure of a Landfill on a former Military Installation and Current Superfund Site

Derek S. Lieberman, P.E.
Department of the Army, Fort Ord BRAC Office



A: 1956-66

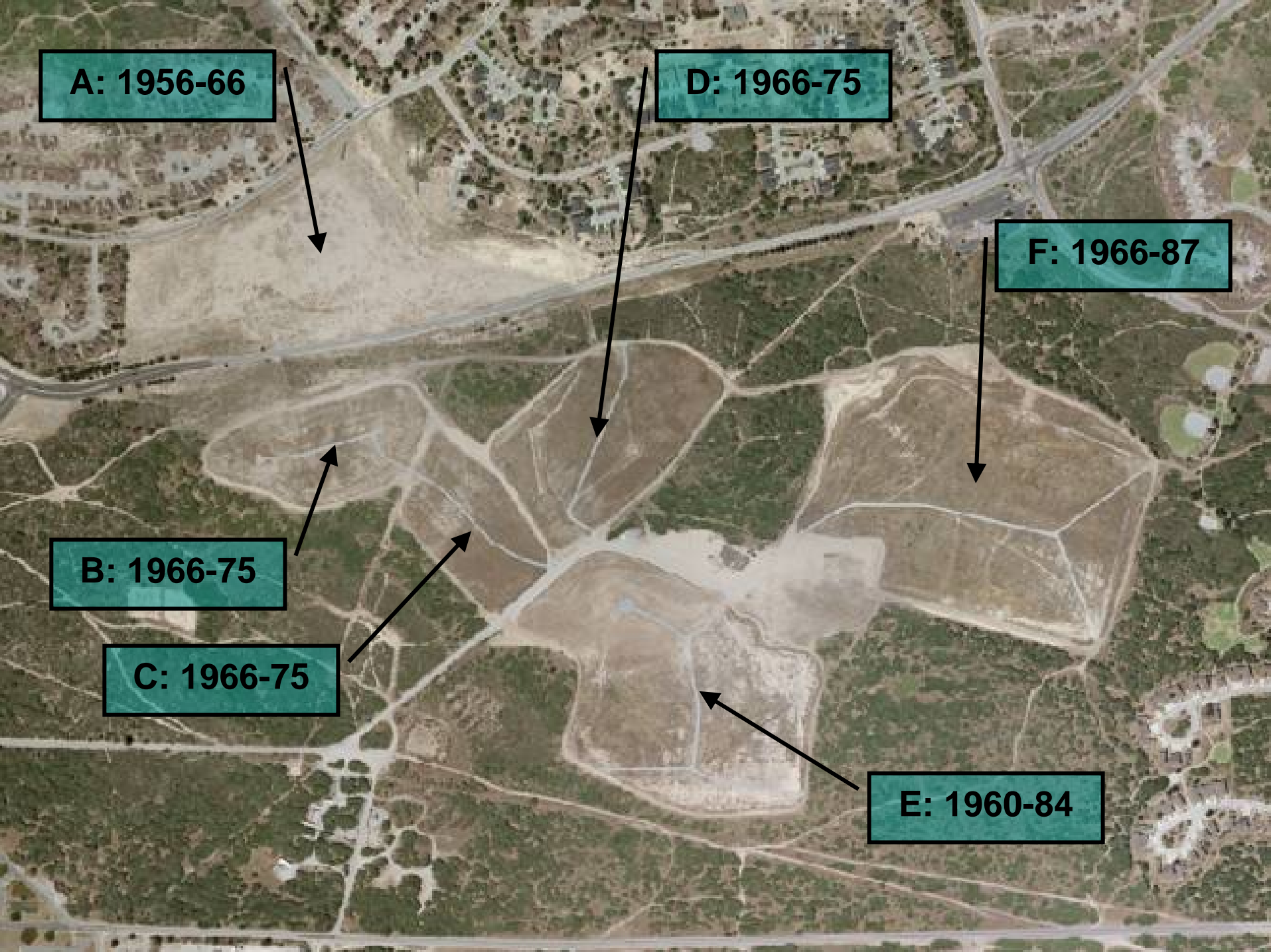
D: 1966-75

F: 1966-87

B: 1966-75

C: 1966-75

E: 1960-84



Fort Ord History

- 1917 – 1994: operated by the Army for infantry and basic training.
- 1986: start of remedial investigations and cleanup actions.
- 1990: USEPA added Fort Ord to National Priorities List, Federal Facility Agreement signed.
- 1991 – DOD listed for closure.
- 1994 – Operable Unit 2 (OU2) Record of Decision (ROD).



Fort Ord Cleanup Mission

- Protect human health and the environment.
- Identify clean parcels.
- Prioritize remediation to support reuse of property.
- Accelerate remediation of contaminated property.
- Remediate to level appropriate for intended reuse.





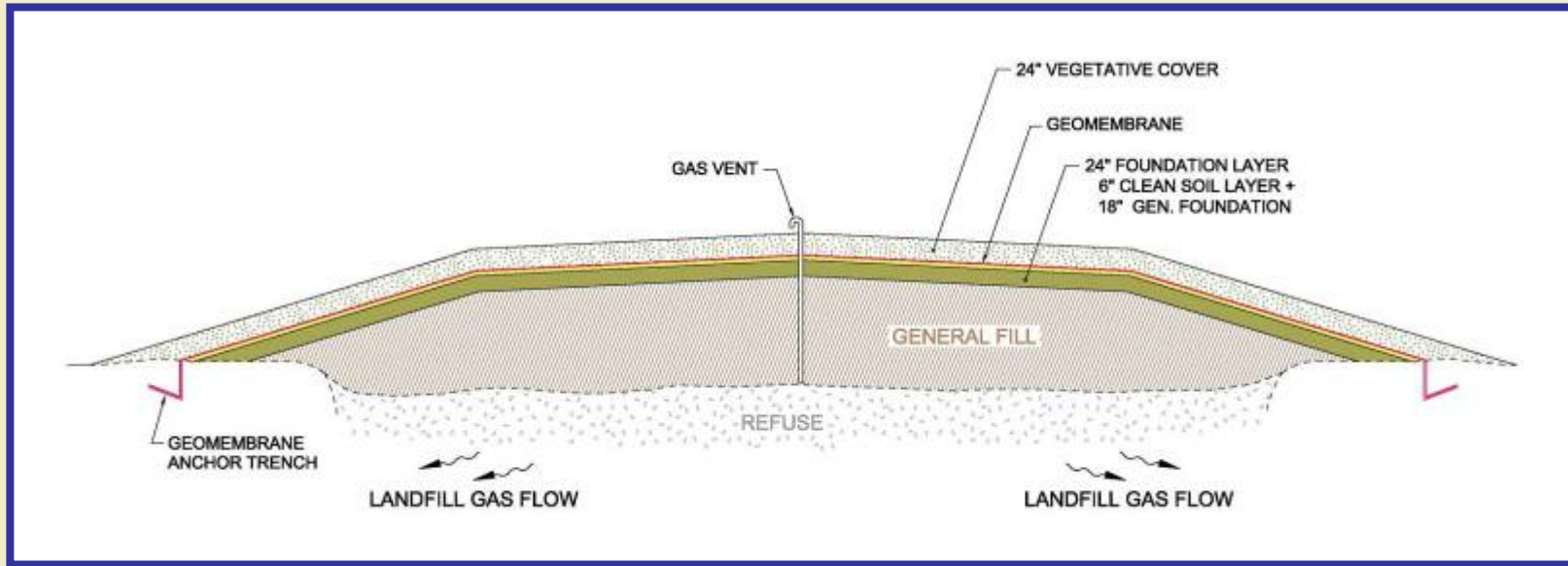
Landfill Closure under CERCLA

Remedial Action Objectives:

- Prevent rainwater infiltration through waste and migration of contaminants to the groundwater.
- Prevent direct access to wastes and exposure of contaminants to people or the environment.



Landfill Cover System



- General fill
- Foundation layer
- Barrier layer (LLDPE)
- Vegetative cover

Closure of Area E

November 2002



Final grade of general fill

Closure of Area E

December 2002



Placing the Final Cover, Area E

December 2002

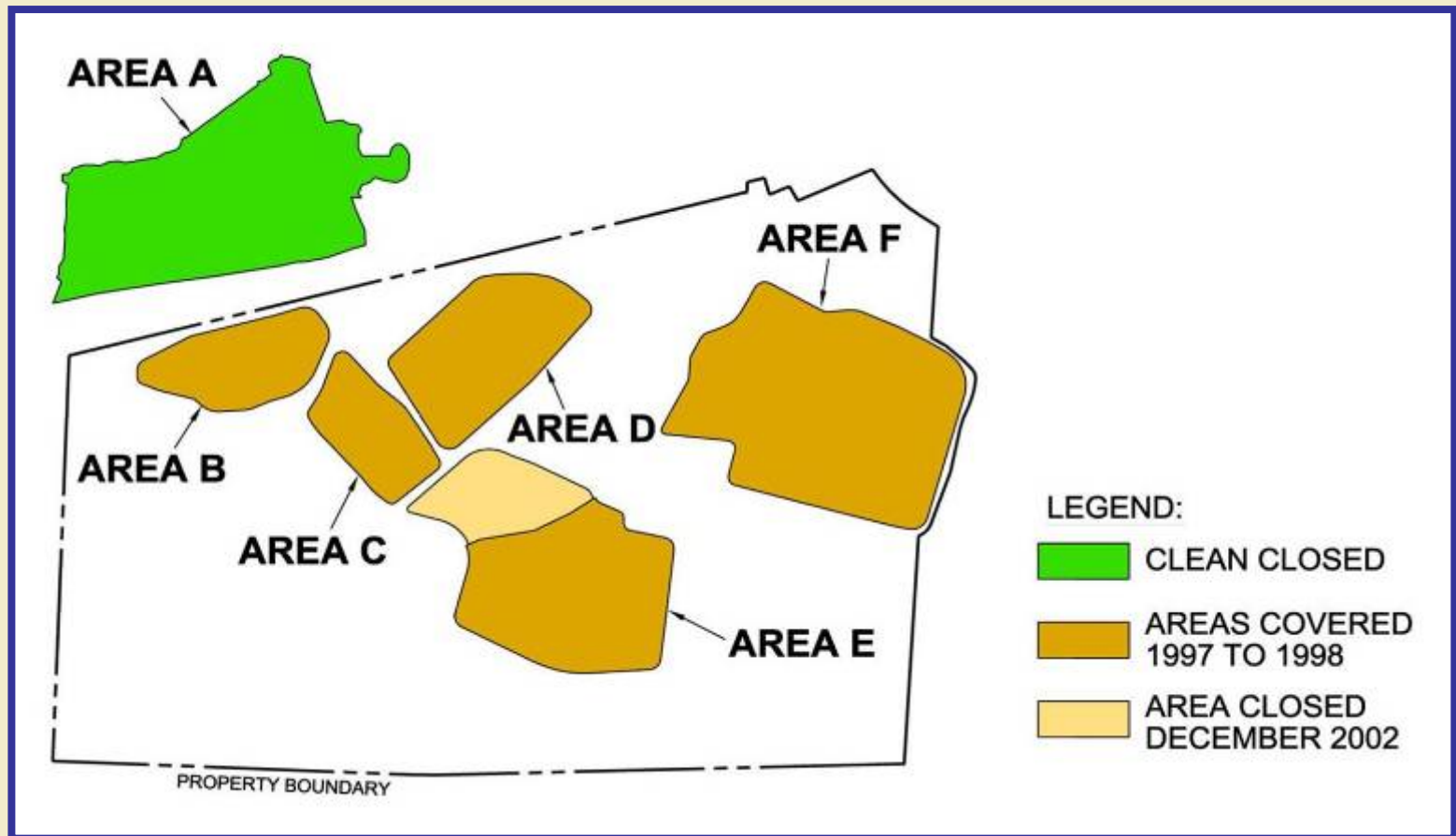


Hydroseeding Area E

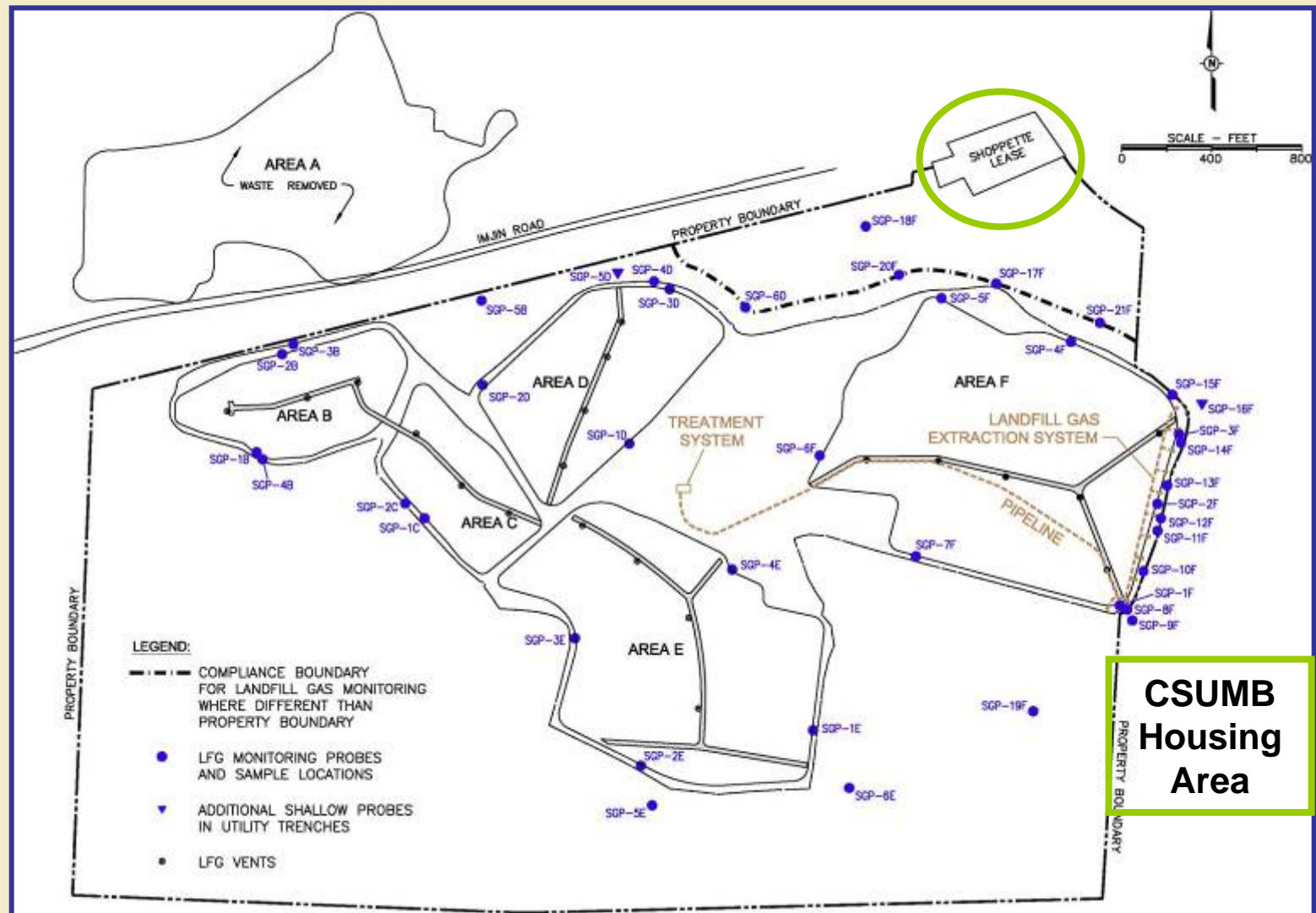


Closure Status – COMPLETE

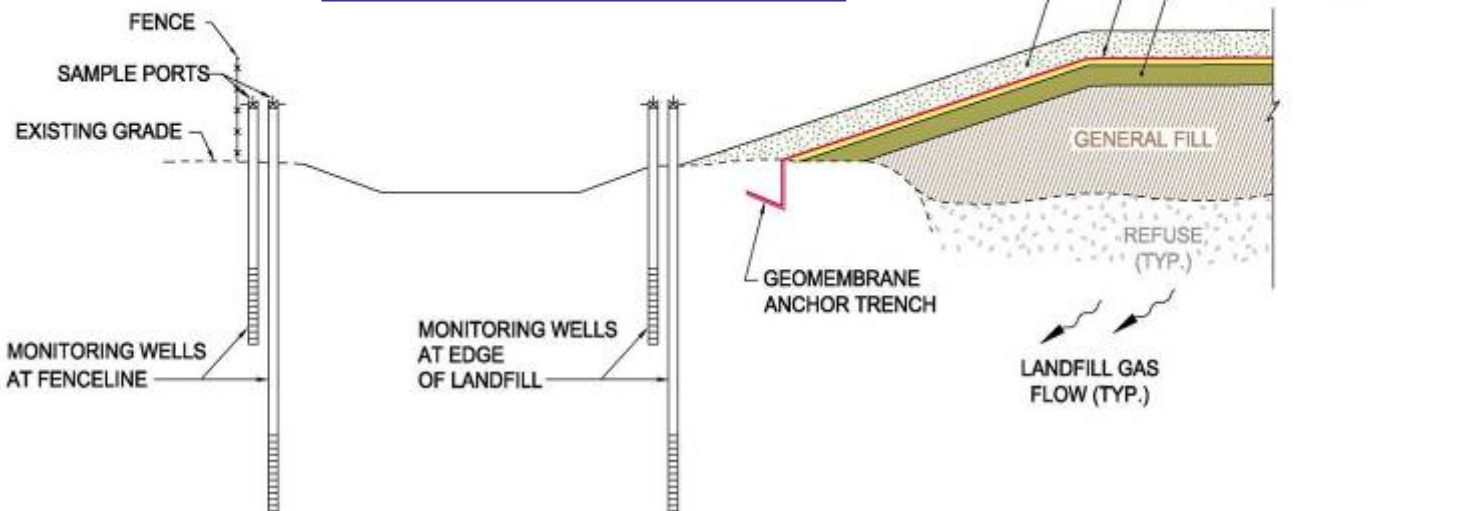
Permitted as a Closed Solid Waste Landfill by the Monterey County Health Department since 2001.



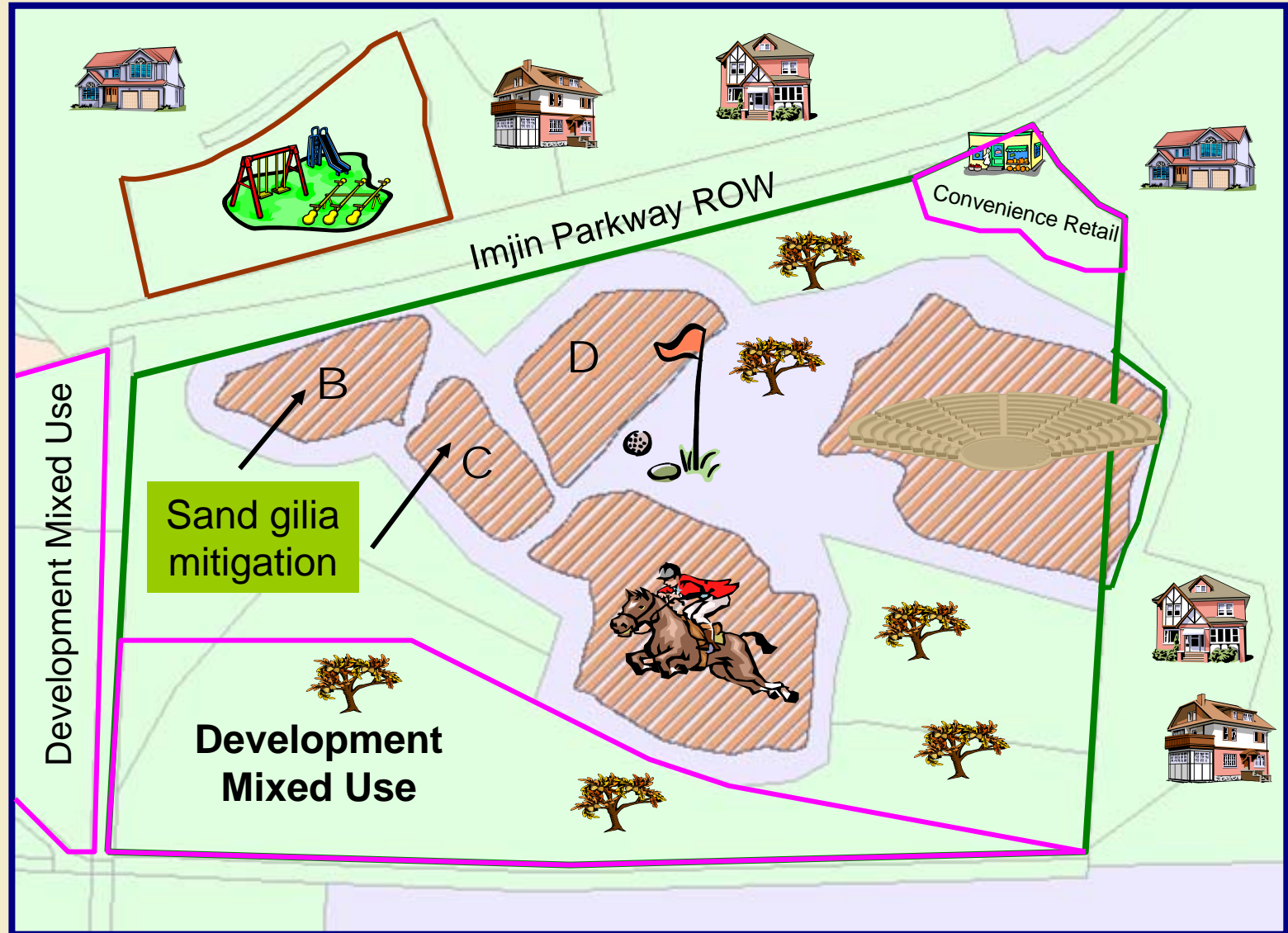
Landfill Gas Monitoring and Control Systems

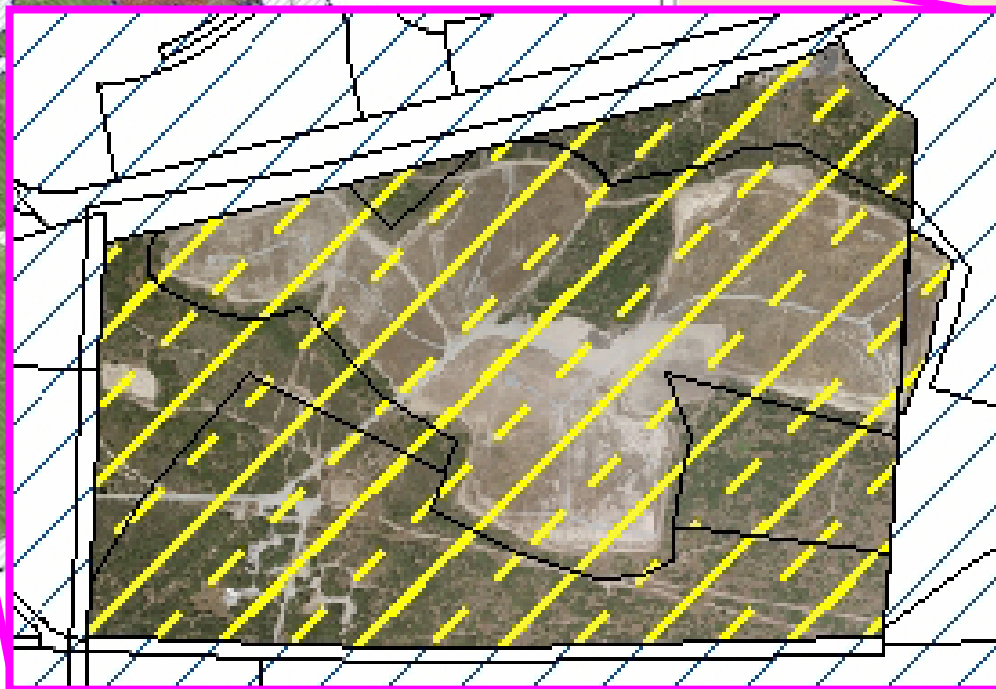


Landfill Gas Monitoring



Reuse of Landfill and Adjacent Property





Institutional Controls

- Land Use Covenants (LUCs) in accordance with 22CCR
 - Restrict access to groundwater
 - Restrict landfill reuse (27CCR)
- Deed Restrictions
 - Restrict access to groundwater
 - Ensure integrity of cover system is maintained



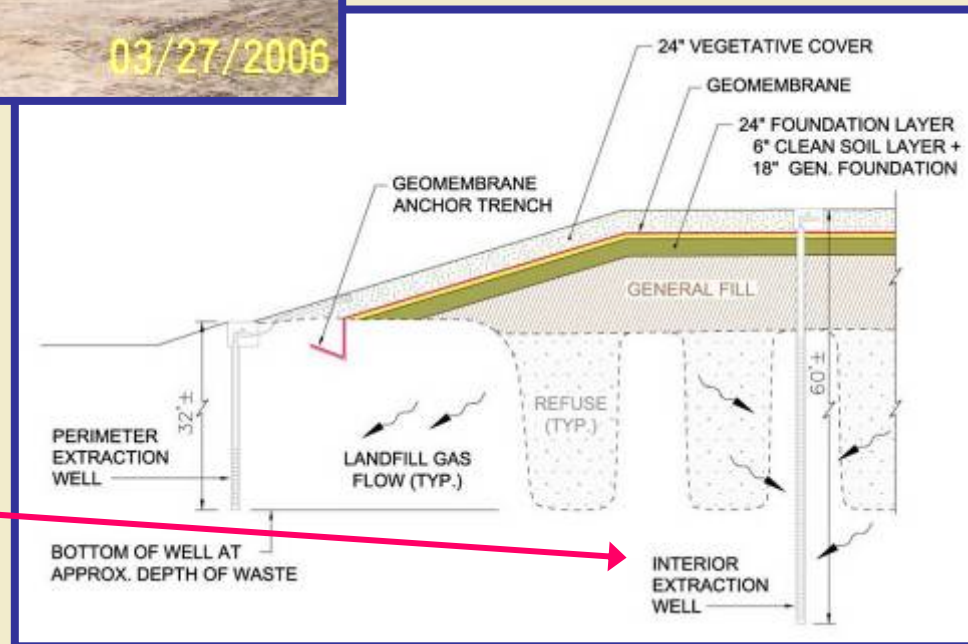
LFG Extraction and Treatment System

Operated June 2001 to March 2006



Operating since
March 2006

Interior wells are
drilled through soil
berms between the
waste trenches

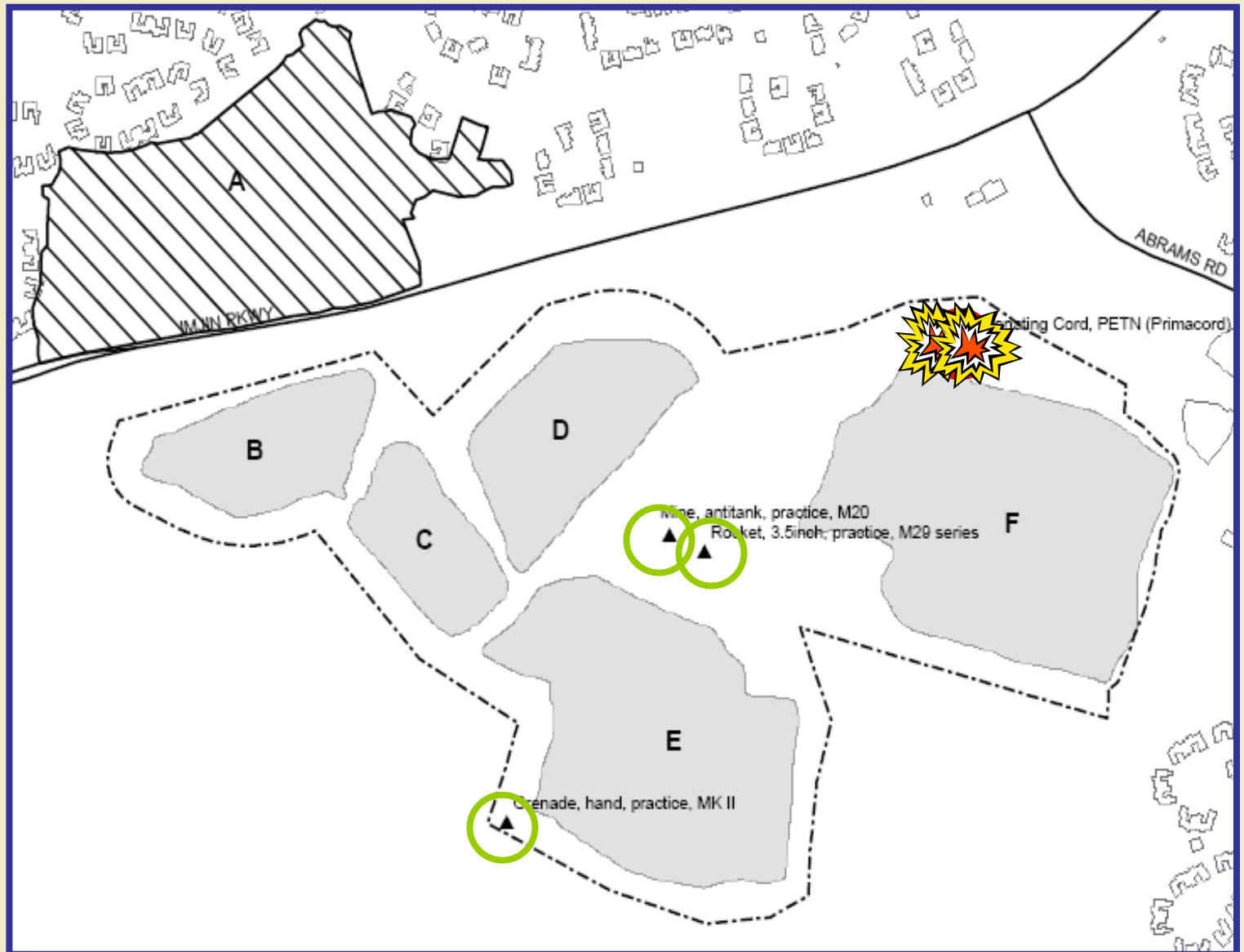


Engineering Controls





Military Munitions



Operations and Maintenance

- Visual inspections at least weekly
- Annual inspection by professional engineer and Regional Board
- Quarterly inspection by LEA
- Repair erosion damage, fill animal holes, mow grass, as necessary
- Perimeter probe monitoring
 - Quarterly methane
 - Minimum annual volatile organic compounds
- Continued operation of LFG extraction and treatment system



For More Information:

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